

REMARKS

Claims 1-40 are pending in this application. Claims 1-7, 9, 11-20, and 22-40 have been rejected and claims 8, 10, and 21 are objected to. By this Response, several claims have been amended, and claims 22-32 have been canceled, without prejudice and without disclaimer of the subject matter contained therein. Claims 1-21 and 33-40 remain pending.

Allowed Claims

Applicants note with appreciation the indication that claims 8, 10, and 21 would be allowable if rewritten in independent form. Applicants, however, continue to believe they are entitled to broader coverage and present arguments to that effect below.

Claim Objections

Applicants note with appreciation the Examiner's indication that the claims had been misnumbered, omitting claim numbers 34 and 35. In accordance with the action, the above listing of claims reflects the renumbered claims 1-40. Claim dependencies have been updated to reflect the renumbering.

Claim Rejections – 35 U.S.C. § 102

Groeninger, US 5,189,902

Claims 1-4, 6, 12, 13, 16-19, 22-26, 28-30, 33-36, and 38-39 stand rejected under 35 U.S.C. § 102 as allegedly anticipated by Groeninger (US 5,189,902). Applicants respectfully disagree.

Independent claim 1 requires, *inter alia*, a first temperature sensor for producing a signal related to the temperature of a mixture within the chamber volume and a second temperature

sensor for producing a signal related to the temperature of the mixture at a point exterior to the chamber. Groeninger 902 also calls for two temperature sensors. Page 2 of the Action notes that Groeninger describes an “interior temperature sensor [114a, 114b], exterior temperature sensor (exterior to the cavity holding the humidity and other temperature sensor, and producing a signal ‘related’ to the temperature of the mixture since the sensor is not completely thermally isolated from the exterior)[114b].” We note immediately that reference numeral 114b has been used in the Action to denote both an interior temperature sensor and an exterior temperature sensor. The Action also carefully explains its position that 114b, the allegedly “external sensor” is exterior to the cavity holding the humidity and other temperature sensor. A careful review of Fig. 1 and the exploded view of Fig. 2 and the specification reveals this simply is not the case.

Groeninger 902 requires that the humidity sensors 112a, 112b be disposed inside the cavity along with at least one temperature sensor. Looking at Figs. 1 and 2, the at least one temperature sensor is indicated as 114a (in Fig. 1 and simply 114 in Fig. 2 – an apparent typographical error). Thus, clearly these three elements are within the cavity. Temperature sensor 114b is “situated further along the sensor housing” (col. 4, line 4) and as seen in Figs. 1 and 2 on the opposite side of a second circuit board 146 holding the humidity sensors 112a, 112b and the temperature sensor 114a. A heater resistance 116 is mounted on a first circuit board 142 along with the temperature sensor 114b (col 4, lines 42-47.) Importantly, col. 6, line 61-68, indicate that heater resistance 116 is powered to heat the atmosphere situated in the vicinity of the second temperature sensor 114b “thereby balancing the temperature within the cavity of the sensor.” Thus, both temperature sensors 114a and 114b must be within the cavity.

The reference is utterly silent with respect to measuring a temperature related to the temperature exterior to the cavity. Indeed, the discussion above makes it clear that temperature

sensor 114a, along with the humidity sensors 112a, 112b are, without question, within the chamber. The specification also details the use of O-rings, 106 and 120 to seal the housing and chamber. The mixture to be tested can only enter through membranes 102 and 110. Thus, temperature sensor 114b is located more interior than temperature sensor 114a, and thus cannot be related to the temperature exterior to the cavity since its only connection with the exterior is through the membranes defining the only opening in the sensor.

Furthermore, Groeninger 902 does not teach or suggest that the relative humidity calculated for the mixture within the chamber may differ from the actual relative humidity of the same mixture outside of the chamber due to thermal lag as described by Applicants' specification. Only Applicants teach that relative humidity of the mixture within the chamber can be used to calculate the relative humidity of the same mixture at a different temperature, namely the temperature of the mixture at a point external to the chamber volume. Indeed, the only discussion of temperature differential in Groeninger 902 is concerned with temperature differential within the chamber as described above. Even then, the temperature differential is not used to calculate a second relative humidity, but to trigger a heating device to remove the difference, and thereby removing any similarity to Applicants' invention.

Groeninger 902 simply does not teach each and every element of independent claim 1 because it does not teach, or even suggest, the required second temperature sensor for producing a signal related to the temperature of the mixture exterior to the chamber volume (cavity) or even that the relative humidity measured within the chamber can be adjust in light of ambient temperature to provide a relative humidity of a mixture exterior to the chamber. Applicants respectfully request withdrawal of the rejection of claim 1 and all claims dependent therefrom with respect to Groeninger 902.

Independent claim 22 is also rejected as allegedly anticipated by Groeninger 902.

Independent claim 22 and claims 23-32 have been canceled without prejudice and without disclaimer of the subject matter contained therein. Accordingly, the rejection of these claims is moot.

The method of independent claim 33, consistent with use of the claimed apparatus, requires a temperature relating to an external temperature in calculating the relative humidity of a mixture at a point external to the chamber containing the humidity sensor. As discussed above, Groeninger 902 simply does not teach or suggest an apparatus or method of using an external temperature to adjust a measured internal relative humidity to reflect the actual humidity of the medium at the external temperature. Only Applicants' specification contains such a teaching. Applicants respectfully submit that independent method claim 33 and claims dependent therefrom are not anticipated by Groeninger 902. Withdrawal of the rejection is respectfully requested.

Applicants respectfully submit that all pending claims are patentable over Groeninger 902.

Campbell, US 5,816,704

Claims 1-3, 6,7, 11-13, 16, 22-25, 33-35 and 38 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Campbell (US 5,816,704). The main focus of Campbell 704 is in measuring the dew point of a material, especially foodstuffs, that are in a sealed chamber containing a humidity sensor and a temperature sensor. The specification, however, does indicate that atmospheric dew points can also be measured with minor adaptations. Fig. 12 shows a device useful for such atmospheric determinations. Fig. 11 and accompanying text at col. 12, lines 17-28 describe an embodiment to be used in high humidity applications and

includes an exterior temperature sensor 121. Notably the device of Fig. 11 and Applicants' claimed invention is the use of a heater 110. As we understand it, the heater is used to equilibrate the internal chamber temperature with that of the external temperature sensor, as alluded to in col. 5, lines 9-14 which state, in part "utilizes a heater control device, such as a heater, to speed up the period of time required for reaching equilibrium and/or to increase accuracy of measurements. . ." In sharp contrast, Applicants' claimed invention need not wait for thermal equilibrium, or bring it about artificially. The external temperature sensor generates a third signal which is used by the process in calculating the exterior relative humidity for the mixture at that temperature. No heating or cooling of the chamber mixture is required. This is a significant improvement over the prior art and is neither taught nor suggested by Campbell 704. Accordingly, withdrawal of the rejection of independent claim 1 and claims dependent therefrom is respectfully requested.

As indicated above, claims 22-32 have been canceled, rendering the rejection of those claims moot.

Claim 33 indicates that the relative humidity of the mixture at a point exterior to the chamber is calculated as a function of the interior temperature, the interior relative humidity, and the exterior temperature as sent to the processor from the various sensors. Campbell 704 simply does not contemplate such a calculation. As discussed above, the only purpose for the exterior temperature sensor of Campbell 704 is to monitor whether addition heating or cooling is needed to reach thermal equilibrium. The exterior temperature is not used to calculate relative humidity, as in Applicants' claimed method. Accordingly, Applicants respectfully assert that independent claim 33 and claims dependent therefrom are patentable over Campbell 704. Withdrawal of the rejections based thereon is respectfully requested.

Claim Rejections- 35 U.S.C. § 103

Campbell 704, alone, is cited as rendering claims 4, 5, 14, 15, 19, 20, 26, 27, 30-32, 36, 37, and 40 obvious under 35 U.S.C. § 103. Campbell 704 in view of Groeninger 902 is cited as rendering claim 9 obvious under 35 U.S.C. § 103. In light of the comments above, Applicants respectfully disagree.

This rejection addresses only the dependent claims and none of the reasoning set forth in the rejections overcomes the obstacles discussed above in connection with either Groeninger 902 or Campbell 704 as discussed with regard to anticipation. There is nothing in either reference to teach or suggest the use of three signals, including one representative of a temperature exterior to the chamber, to calculate the relative humidity of a mixture outside the chamber. For this reason, Applicants respectfully request withdrawal of the rejections based on 35 U.S.C. § 103.

Applicants believe this reply is fully responsive to the Office Action. Applicants respectfully assert that all pending claims are allowable over the cited art and requests withdrawal of the rejection under 35 U.S.C. §§ 102 and 103.

Applicants hereby authorize the Commissioner to charge any fee due or credit any overpayment to deposit account 50-1275.

Early reconsideration and allowance of all pending claims is respectfully requested. The examiner is requested to contact the undersigned attorney if an interview, telephonic or personal, would facilitate allowance of the claims.

Respectfully submitted,
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